ECOSYSTEM WORKFORCE PROGRAM

WORKING PAPERS

Long Term Trends in Contracting and the Impact of the National Fire Plan in Northern California

EWP Working Paper Number 7, Fall 2003

Cassandra Moseley
Mikhail Balaev
Adam Lake

Institute for a Sustainable Environment, University of Oregon

Rev 2

About the authors

Cassandra Moseley is director of Research and Policy for the Ecosystem Workforce Program, Research Associate in the Institute for a Sustainable Environment, and a Courtesy Assistant Professor in the Planning, Public Policy, and Management Department at the University of Oregon. *Mikhail Balaev* is a Program Assistant at the Ecosystem Workforce Program and a PhD candidate in the Department of Sociology at the University of Oregon. *Adam Lake* is a Program Assistant at the Ecosystem Workforce Program.

The *Ecosystem Workforce Program Working Papers* series offers in-depth reports on applied research, analysis, and findings related to effort to build quality jobs in ecosystem management. The target audience includes policy and administrative leaders, academics, leaders in community forestry, community-based organization leaders, and local community officials.

UNIVERSITY OF OREGON

ECOSYSTEM WORKFORCE PROGRAM
Institute for a Sustainable Environment
5247 University of Oregon
Eugene, OR 97403-5247
(541) 346-4545
Fax (541) 346-2040
http://ewp.uoregon.edu

Executive Summary

This report (1) documents changes in Forest Service procurement contracting between the early 1990s and the early 2000s and (2) evaluates whether the authority to consider local benefit when awarding the National Fire Plan (NFP) funded contracts has impacted contracting opportunities in Northern California.

Changes between 1991 and 2002

We compared contracts that the Forest Service awarded in northern California between fiscal years (FY) 1991 and FY 1993 to contracts awarded between FY 2000 and FY 2002. We found that the total value of forest management contracts that the Forest Service issued in northern California declined by 9 percent between the early 1990s and the early 2000s. However, the value of fire suppression contracting increased by roughly 290 percent. Tree planting and labor-intensive contracting related to timber management declined while contracting of surveying and studies increased. The money spent on tree thinning contracts was about equal during the two periods.

The types and numbers of businesses working in northern California changed as well between the two periods. The number of businesses involved in contracting declined during the decade faster than the amount of money the Forest Service spent on contracting; the number of contractors decreased by 42 percent whereas the contracting dollars decreased by 9 percent. Moreover, only 29 of the 302 contractors that obtained contracts between FY 1991 and 1993 were also awarded contracts between FY 2000 and 2002. The size of the contractors, measured by revenue earned from the Forest Service, who appeared in both periods grew considerably during the intervening decade.

In addition to the general consolidation of forest contracting businesses, the location of businesses that performed work on national forests in the counties of northern California also shifted. For each contract, we measured the distance between the contractors's offices and the national forest where they performed work. The mean distance the contractors traveled to work in northern California decreased from 163.2 to 124.8 air miles. For scale, the distance between Redding and the Oregon-California border is about 100 air miles. This reduction in the distances that contractors travel is attributable to the decline of labor-intensive work that used to be awarded to Central Valley, California and Willamette Valley, Oregon contractors and, perhaps, the development of technical capacity among northern California contractors.

Although the Forest Service awarded contracts to businesses located closer to national forests in the early 2000s than in the early 1990s, the Forest Service awarded less contracting value to contractors in rural communities (less than 5,000 people) in the early 2000s than they did in the early 1990s (32.3 percent in 1991-1993 vs. 27.3 percent in 2000-2002). The decline for communities between 5,000 and 10,000 was even more marked. By contrast, cities with over 50,000 residents received about the same percentage of contract funds in both periods (23-25 percent). Contractors from the region's urban center, Redding, California increased their contract capture from $5.7 million (8.6 percent) in 1991-1993 to $8.0 million (13.4 percent) in 2000-2002, while contract capture decreased for

contractors from more distant urban areas.

In sum, the Forest Service's forest management contracting and the number of contractors working on national forests in Northern California declined over the last decade. Contractors are located closer to national forests than they once were, but this has not translated to more opportunities for rural communities. Instead, contractors from rural communities have seen their share of the contracting dollars decline, while contractors from Redding and mid-size towns have seen their share of the contracting increase. Despite the decrease in money being spent on forest management contracting, the average contract size increased. The increase in average contract size may partially explain the decline in rural contract capture because we might expect rural contractors to be smaller than those based in mid-sized towns or urban areas. The decline in labor-intensive work may be reducing the demand for mobile crews from California's Central Valley and Oregon's Willamette Valley.

National Fire Plan Contracting

During FY 2001 and 2002, the Shasta-Trinity, Six-River, Mendocino, Lassen, and Modoc National Forests awarded approximately $6.7 million worth of National Fire Plan funded contracts. (The Klamath National Forest did not record their NFP contracts.) Approximately $1.2 million of those funds were spent on contracting thinning work.

To understand if the Forest Service's authority to consider community benefit when awarding hazardous fuels contracts had an effect on the location of contractors awarded National Fire Plan contracts, we measured the distance that contractors traveled to work on National Fire Plan contracts and compared them to the distances that contractors traveled for similar regularly funded contracts. The mean distance was about the same: 132.8 air miles for NFP contracts and 133.9 miles for non-NFP contracts. However, we found that NFP contracts were awarded to contractors 32 percent closer to the national forest where the work occurred than non-Fire plan contracts, when controlling for other factors such as the type of work performed and the type of contractor (e.g HUB zone and 8(a)). Although these results were statistically significant, caution should be used when interpreting these results because the northern California national forests issued only 37 forest management National Fire Plan contracts during FY 2001 and 2002. This small number makes statistical analysis vulnerable to the impact of a single contract.

In addition to contracts being awarded to contractors closer to national forests, we also found that contractors in communities with fewer than 5,000 people were awarded 8.3 percentage points more regularly National Fire Plan funded contracts than they non-NFP funded contracts.

In sum, the National Fire Plan authority does appear to have created opportunities for businesses closer to national forests than was the case for regularly funded contracts, and that this translated to additional opportunities for nearby rural communities as well. However, because of the small number of contracts involved, this analysis is not conclusive. Regardless, National Fire Plan funding has not come close to replacing the amount of money that was being spent on forest management contracting in the early 1990s.

Contents

Tables

Figures

Background

With the end of industrial scale logging on public lands and the creation of the Jobs in the Woods Program in western Oregon and Washington, and northwestern California, forest communities and the Forest Service have been working to provide high skill, high wage employment opportunities performing forest and watershed restoration (Moseley and Reyes in preparation; Moseley and Toth under review). Although initially this was done through worker training programs, much of the attention in recent years has been on using procurement contracting. With the fiscal year (FY) 2001 appropriations, Congress explicitly authorized the Forest Service and the Bureau of Land Management to consider the extent to which companies planned to hire and train local workers—workers who live near the national forest where the work was performed—when awarding fire hazard reduction contracts. The Forest Service awarded National Fire Plan contracts to businesses somewhat closer to national forests than was the case with regularly funded contracts in Oregon and Washington in FY 2001, suggesting that this authority was having some affect (Moseley, Toth, and Cambier 2002). However, isolated rural communities such as those in Lake County and Wallowa County, Oregon did not benefit particularly from National Fire Plan contracting, when compared to regular contracting (Moseley and Toth under review). Given the decentralized nature of the Forest Service, however, it is an open question whether these results would hold in other regions. To understand how these results might vary across regions, we replicate the study in northern California, which is adjacent to the previous study area and has a similar ecology, but is in a different Forest Service region.

To understand whether National Fire Plan-funded contracts were awarded to contractors located closer to national forests than was the case with regularly funded contracts, we first needed to understand the northern California contracting market. Danks and Jungwirth (1999) created a series of maps showing that contractors from the Interstate-5 corridor across Oregon and California captured contracts on the Trinity portion of the Shasta-Trinity National Forest between 1991 and 1996. The Shasta-Trinity National Forest tended to award road construction and maintenance contracts to nearby contractors but labor-intensive contracts such as tree planting and thinning to contractors located in California's central valley, in agricultural centers such as Fresno, a few hundred miles away. However, this pattern could have changed in the intervening years with the decline of clear cutting and therefore the need for tree planting and other reforestation activities.

Research Questions

The suspected change in the type of work that the Forest Service has been contracting over the last decade and the local benefit criteria of the National Fire Plan suggests two research questions:

1) How has the procurement contracting market changed between the early 1990s and 2000s in northern California?

2) Has the local benefit authority of the National Fire Plan increased contract capture by contractors located nearer national forest and in rural communities in Northern California?

Method and Scope

When making comparisons between the early 1990s and a decade later, we draw our data from the SF-279 dataset that comes from the Federal Procurement Data Center. In this dataset, Forest Service records are organized by county of performance not national forest. When examining changes over time, we used the following counties in northern California: Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, and Trinity. This likely includes work from the Klamath, Lassen, Mendocino, Modoc, Shasta-Trinity, Six Rivers and part of the Plumas national forests. When reporting distances that contractors traveled to work on national forests during these two periods, we include only Del Norte, Glenn, Humboldt, Lake, Mendocino, Shasta, Siskiyou, Tehama, and Trinity, because we are using of data generated as part of a study of the Northwest Forest Plan's area in northwestern California.

To understand the impacts of the National Fire Plan, we examined procurement contracting data for FY 2001 and 2002 from six national forest in northern California: Klamath, Lassen, Mendocino, Modoc, Shasta-Trinity, and Six Rivers. The Forest Service provided data from the Federal Procurement Data Center's SF-279 database and from contract registers. The SF-279 database includes contracts valued over $25,000 and is supposed to indicate all contracts funded using National Fire Plan funds. The Klamath National Forest either did not award any National Fire Plan contracts during FY 2001 or FY 2002 or did not mark those that they did award in the database. Conversations with procurement staff did not resolve the issue definitively, but it is likely that the forest did not record their National Fire Plan contracts. Consequently, we include the Klamath National Forest in our regional contracting analysis but exclude it from the National Fire Plan analysis. In addition to the data from the SF-279 data, we obtained contracting registers from the six national forests. Contracting registers include contracts above $2,500, which allowed us to add smaller contract to the database. This is important because, in other regions at least, we have learned that local contractors are more likely to obtain smaller contracts than larger ones (e.g. Kauffman 2001). However, the Modoc National Forest omitted dollar figures for about half of their FY 2002 contracts in their contract register. This may bias the results toward somewhat larger contractors, and therefore, perhaps more distant contractors in the general contracting analysis. Because of the different areas included in our data, we do not compare across sources.

These datasets include information such as the name of the contractor awarded the contract, dollar value of the contract, and the type of work involved in the contract or the product service code. In addition, these datasets include some information about the contractor, such as whether they are enrolled in the Historically Underutilized Business (HUB) zone program, to benefit empoverished communities, or the so-called 8(a) program, for woman and minority businesses. None of the data that the Forest Service provided included contractor addresses or zip codes. We identified contractor locations using the Duns and Bradstreet on line database and an Ecosystem Workforce Program contractor database.

When choosing contracts to include in the dataset, we picked ones related to

ecosystem management, broadly defined, using the same criteria as previous studies (Moseley and Shankle 2001; Moseley, Toth, and Cambier 2002). That is, we included work related to forestry and watershed management such as thinning, brushing, road maintenance and decommissioning, prescribed burning, species surveys, and instream restoration but excluded work such as paving, building construction and maintenance, personnel training and copier repair. It is likely that in the earlier period this work involved many tasks associated with intensive timber management, rather than "ecosystem management." We include here work in the woods and on the ground regardless of its purpose. A contract's exact objectives cannot be imputed from the available data. Fire suppression is also excluded from our central analysis because it is procured using different processes than other forestry services work. However, we include a brief description of fire suppression contracting because of the Forest Service's increasing emphasis on fire suppression contracting. There is, however, reason to believe that fire suppression contracting is underreported in our data.

To compare the early 1990s and the 2000s, we use a series of descriptive statistics. To understand the impact of the National Fire Plan on the contracting market and the contractors involved in it, we calculate distances between contractor offices and the national forest where the work occurred using a similar method to Moseley and Shankle (2001) and create a linear regression model using the log of the distance traveled by a contractor as a dependent variable and the contract amount, the distance between the forest and the closest city with a population of 50,000 or more, and a number of binary variables such as forest location on east or west side of northern California, the type of work, the type of contractor, and whether or not the contract was funded with National Fire Plan funds. A more detailed discussion of the method can be found in Moseley, Toth, and Cambier (2002), Moseley and Shankle (2001), and Moseley and Reyes (in preparation).

Changes in the Regional Contracting Market

Type and amount of work contracted

To understand how contracting in Northern California has changed over the past decade, we compared contracts from FY 1991-1993 to those from FY 2000-2002 that appeared in the SF-279 database for the counties of northern California. This includes only contracts with an expected value over of $25,000.

The Forest Service awarded fewer contract dollars in northern California in the early 2000s than it did during the early 1990s. The Forest Service purchased $66 million worth of forest management services during FY 1991-1993 and $60 million between FY 2000 and 2002, measured in inflation adjusted 2002 dollars. The Forest Service issued fewer contracts as well; the number of contracts it awarded decreased from 795 contracts in the early 1990s to 488 in the early 2000s. The mean contract size increased from $84,700 to $123,000, which is a statistically significant difference. The median contract size was approximately $51,000 during the first period and $59,000 during the second.

In addition to a general decline in contract funding and an increase in average contract size, the Forest Service shifted the type of work that it contracted. We divided the product service codes that the Federal Procurement Data Center provides into three categories—labor, equipment, and technical. This is a rough categorization as some codes include wide variety of worktypes. Nonetheless, this division suggests that labor-intensive work declined 261 percent and equipment-intensive contracting increased somewhat between the two periods. Among equipment-intensive work, road maintenance increased considerably. This new volume of contracted road work may be a result of the Forest Service replacing road maintenance work that used to occur as part of timber sales with contracted road work rather than increasing emphasis on road maintenance. Funding dedicated to technical work such as surveying increased fourfold (Fig. 1 and Appendix A). However, the largest technical category in the early 2000s—other natural resource management and conservation—includes technical work such as species surveys, but also includes non-technical work such as rock crushing. Among labor-intensive tasks, there was a marked shift away from tasks related to clearcut forest management such as tree planting and site preparation. Interestingly, spending on contracting thinning is about the same between the two periods, despite the recent political attention on thinning for fire hazard reduction (Figs. 2-4).

In addition to forest management contracting, the Forest Service spent approximately $11 million on fire suppression contracting between 1991 and 1993, and

Figure 1—Labor, equipment, and technical contracting, FY 1991-1993 and FY 2000-2002

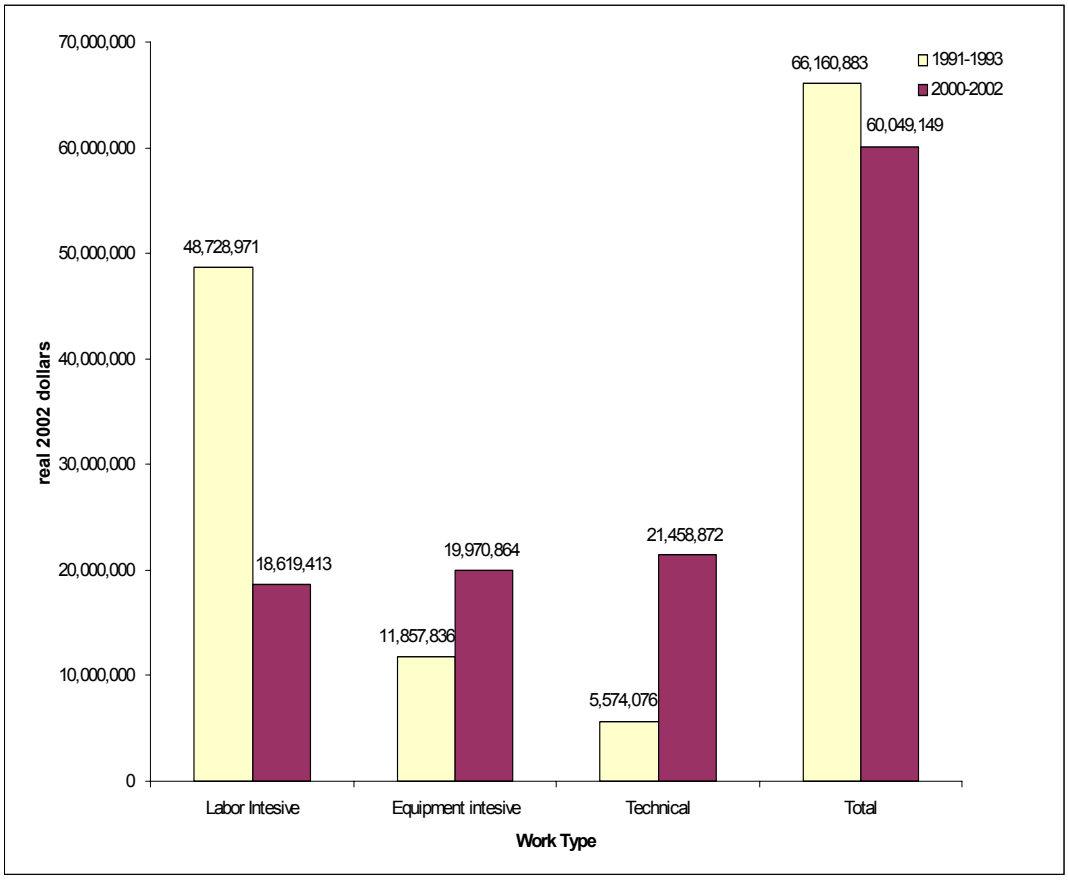


Figure 2—Labor contracting by product service code, FY 1991-1993 and FY 2000-2002

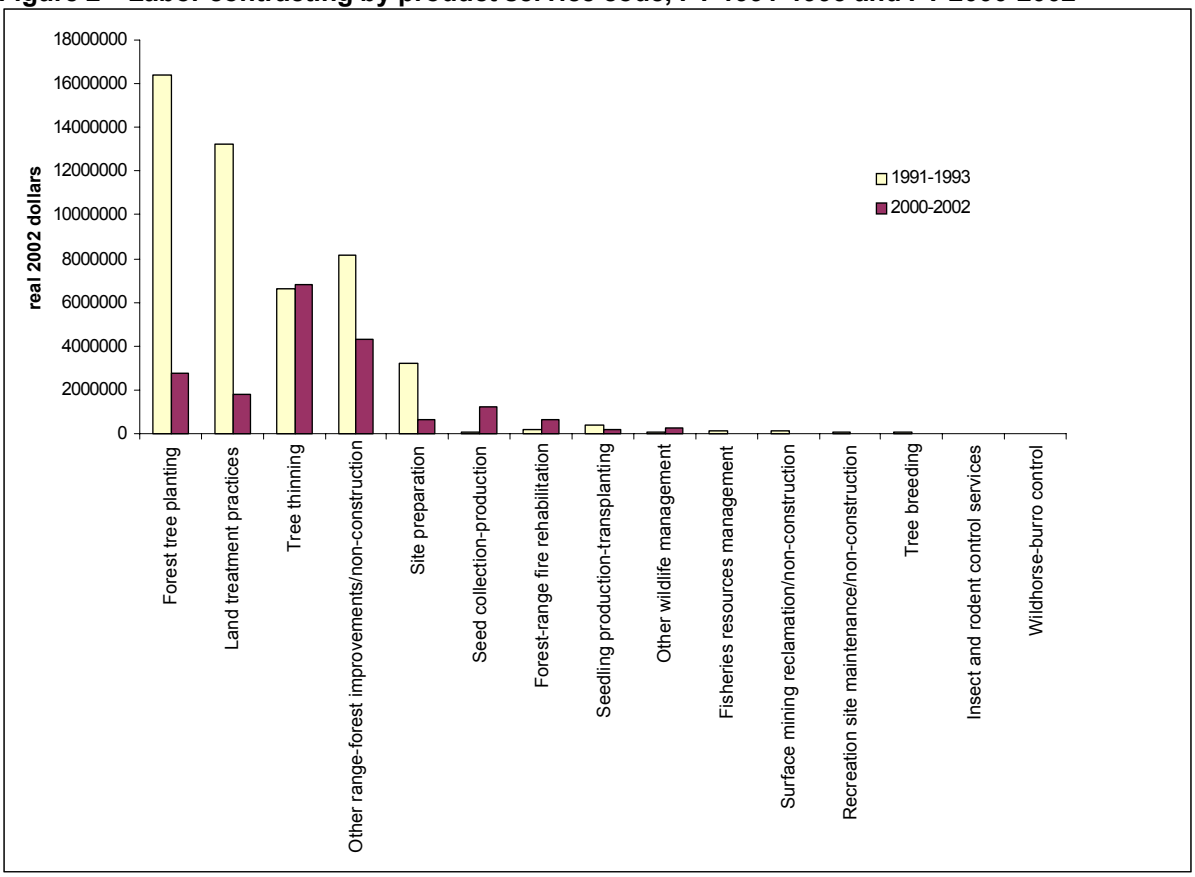


Figure 3—Equipment contracting by product service code, FY 1991-1993 and FY 2000-2002

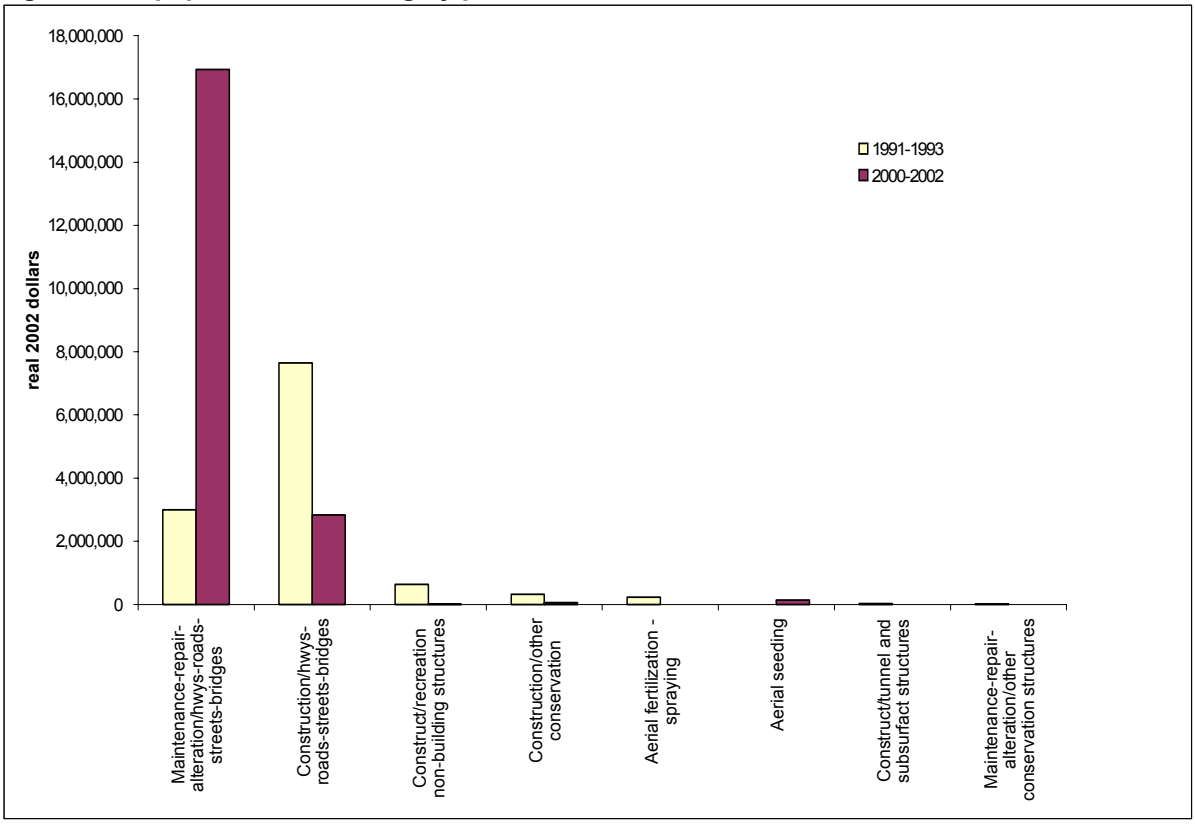
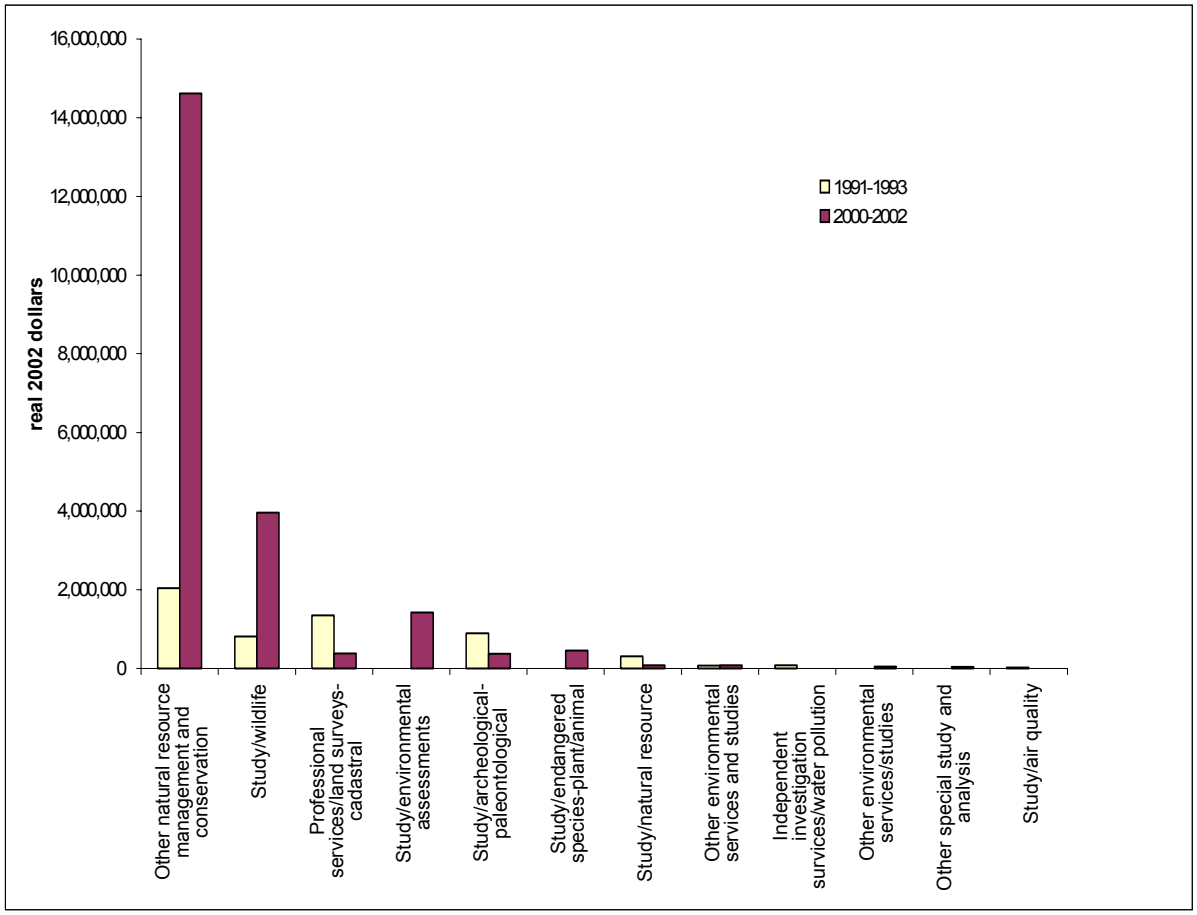


Figure 4—Technical contracting by product service code, FY 1991-1993 and FY 2000-2002



just over $31 million in the 2000-2002 period, corrected for inflation. This three-fold increase is greater than the $6.1 million decrease in forest management-related contracting. When drawing conclusion from this data, we must remember that this data only tells us about changes in contracting patterns, not changes in overall Forest Service spending. Nonetheless, the Forest Service has shifted away from spending its contracting dollars on tasks associated with timber management and increased tasks such as species surveys and road work. Increases in fire suppression contracting have far outweighed decreases in ecosystem management-related procurement.

Changes in contractors

In addition to a decline in funds spent on forest management contracting, the number of contractors awarded contracts between the two periods declined as well. Between FY 1991 and 1993, the Forest Service awarded contracts to 302 contractors for work performed in northern California, whereas they awarded contracts to only 175 contractors between 2000 and 2002, a 42 percent decline. By contrast, contracting dollars declined by only 9.3 percent. Fewer contractors appeared in all size classes; the concentration of contracting dollars in the hands of the largest contractors increased slightly (Table 1). If we rank contractors by the amount of money that they were awarded in each period, we find that the largest eight contractors in the early period received 25 percent of the funding as did the

Table 1--Concentration of contracting awards by size of contractor FY 1991-1993 and FY 2000-2002

	1991-1993		2000-2002	
	Number of contractors	*Percent of contractors*	*Number of contractors*	*Percent of contractors*
1st quartile	8	2.6	5	2.9
2nd quartile	21	7.0	11	6.3
3rd quartile	41	13.6	23	13.1
4th quartile	232	76.8	136	77.7
Total	302	100	175	100

largest five in the later period. The Forest Service awarded half of the contract dollars to 9.6 percent of the contractors in the early 1990s and 9.2 percent in the early 2000s. That is, the largest 29 contractors in the 1990s and the largest 15 contractors in the 2000s received half of the contract dollars issued during each of these periods.

Despite a similarity in the market concentration between the two periods, we could only identify 29 contractors that appeared in both time periods. This is about 7 percent of the contractors that appear in the dataset. We identified contractors by matching their unique Duns numbers or identical names. This may underestimate the repeated contractors because a company could have changed its name and reapplied for a Duns number during the intervening period. The size of the businesses that contracted with the Forest Service during both periods grew during the 1990s, or the amount of business that they did with the Forest Service grew considerably. The average amount of money awarded to these contractors in the early 1990s was $326,332 where as it was $663,066 during the 2000s. The average contract size of contractors who only appeared in one period increased much less (Table 2).

Table 2--Comparison of contractors that appear in FY1991-1993 and FY2000-2002 with those that appear only in one period

	1991-1993	2000-2002
Appearing in both periods		
Number of contractors	29	29
Percent of contractors	9.6	16.6
Total dollars to those contractors	9,463,616	19,228,910
Average dollars to contractors	326,332	663,066
Appearing in one period		
Number of contractors	273	146
Percent of contractors	90.4	83.4
Total dollars to those contractors	56,697,267	40,820,239
Average dollars to contractors	207,682	279,591

In sum, we see that the number of contractors working in northern California decreased considerably during the 1990s. The average contract size and average dollars awarded to each contractor increased. The largest contractors have not increased their market share much; the proportion of contracts awarded to the large and small contractor is about the same. The vast majority of contractors disappeared, reorganized, or renamed themselves during the 1990s and 42 percent disappeared and were not replaced.

Location of contractors over time

In addition to the change in the number of contractors working on national forests in northern California, we also see a change in the location of contractors who were awarded these contracts. Most obviously, fewer contract dollars were awarded to contractors in the southern Central Valley of California and the Willamette Valley of Oregon in the early 2000s than in the early 1990s (see Figs. 5 and 6). The mean distance that contractors traveled to work on national forests in Northwest-Forest-Plan-affected counties in Northern California in the early 1990s was 163.2 air miles but it decreased to 124.7 air miles in the early 2000s. The median distance during FY 1991-1993 was 99.3 air miles and it was 67.6 air miles in FY 2000-2003. The median distances were considerably smaller than the means. This suggests that there are a few large distant contractors and a large number of closer contractors. The median distance that contractors traveled to work declined by roughly the same amount, suggesting that the change was more systematic than the disappearance of a few very distant contractors. However, if we compare contracts with similar types of work across the periods, distances are somewhat shorter during the later period, but not significantly so. It appears that there is general trend towards awarding contracts to closer contractors, but, if we look at the change in the number of contracts in each category, we see that this change is largely attributable to the decline in labor-intensive contracts and, perhaps, the development of local technical contracting capacity (Table 3).

Table 3--Difference in mean and median distance between FY 1991-1993 and FY 2000-2002

	1991-1993	2000-2002	Significance
Mean distance (air miles)			
All contracts	163.2	124.7	0.001
Labor	166.0	148.5	0.238
Equipment	133.2	95.3	0.219
Technical	201.0	126.0	0.368
Median distance (air miles)			
All contracts	99.3	67.6	
Labor	115.5	80.0	
Equipment	72.6	61.3	
Technical	77.1	51.2	
Number of contracts			
All contracts	795	488	
Labor	653	264	
Equipment	105	138	
Technical	37	86	

Figure 5—Value of forest management contracting by contractor location, FY 1991-1993

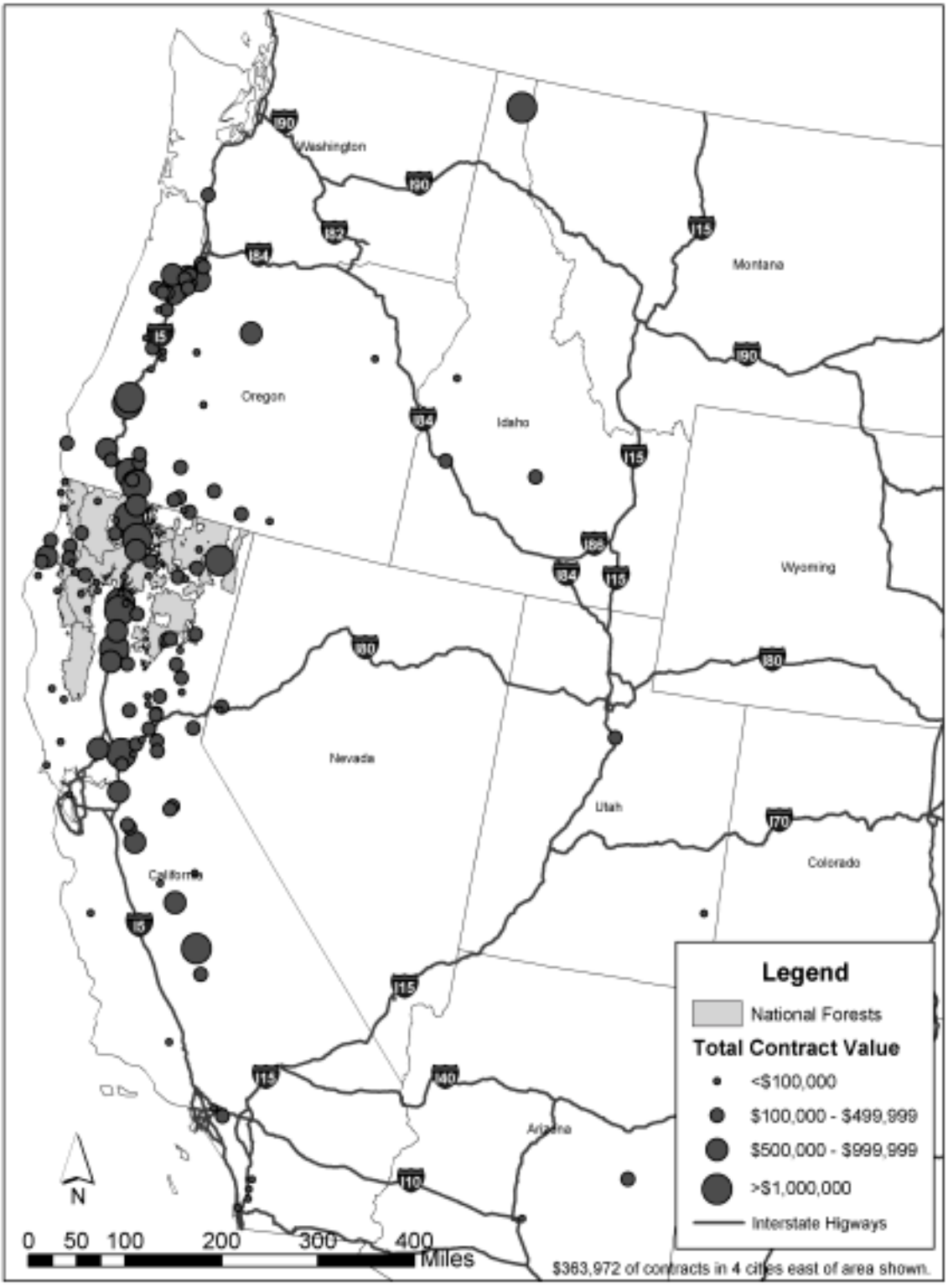
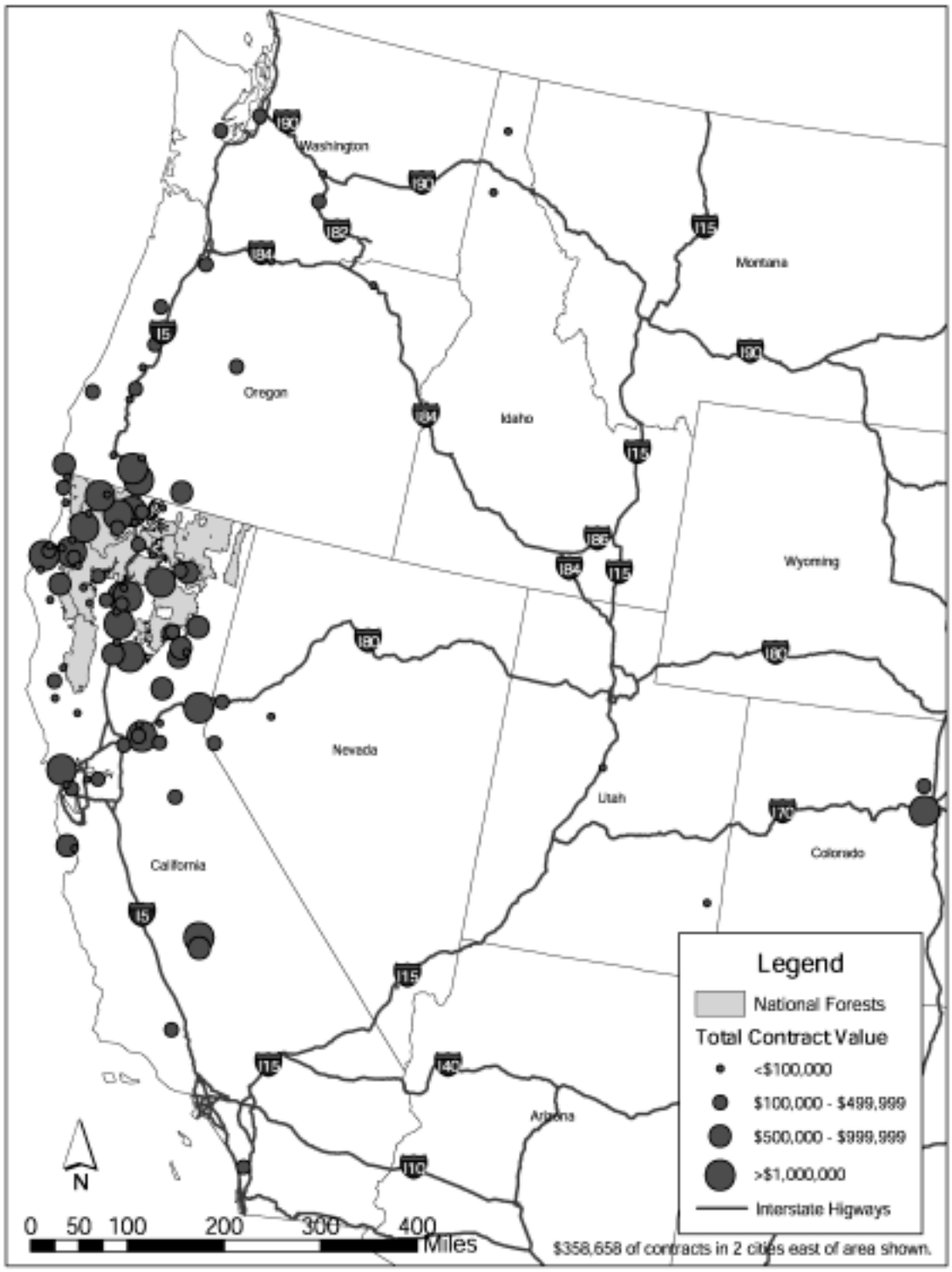


Figure 6—Value of forest management contracting by contractor location, FY 2000-2002



When interpreting these numbers it is important to keep in mind that they are measured in air miles and therefore are significantly different than road mile distances. For example, it is roughly 100 air miles from Redding to where Interstate 5 crosses the Oregon-California border, but about 125 miles on Interstate-5. It is 212 road miles from Redding to Crescent City, but only 123 air miles (see Appendix B).

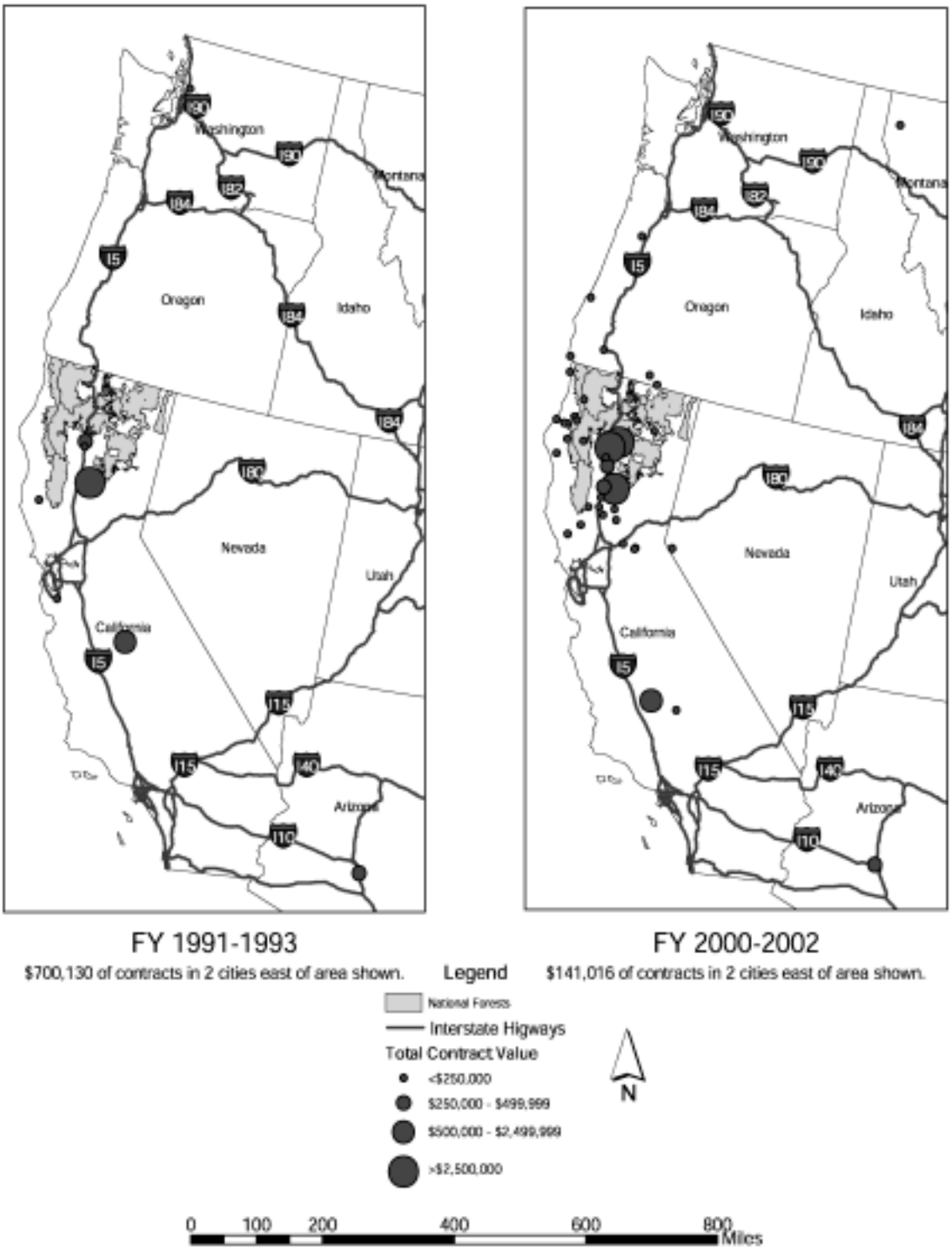
One might expect that reforestation and thinning companies that used to travel long distances for tree planting or other reforestation work now travel long distance for fire suppression. All of these tasks are labor intensive and tend to involve relatively large crews of workers. However, for national forests in northern California, we found that this was not likely to be the case. Much of the fire suppression money was awarded to contractors along the Interstate-5 corridor, but largely in northern California, not in Oregon or the southern Central Valley as was the case with reforestation contracts in the early 1990s (see Fig. 7).

In addition to understanding how far contractors travel to work on national forests, we can also consider whether contractors located in rural or urban areas are being awarded contracts. The Census Bureau defines communities with populations over 50,000 as urban and those with populations less than 5,000 as rural. We see that contractors located in urban areas, with populations above 50,000, were awarded 25 percent of the contract value in the 1991-1993 period, and 23.6 percent during the early 2000s, a small decrease. However, if we look at the lower population areas, we found that contract capture in those areas declined considerably. Thirty-two percent of contract value was awarded to contractors in areas with populations less than 5,000 in the early 1990s, whereas only 27.3 percent of contract value was awarded to contractors in these low-population areas during the early 2000s. (Unincorporated communities are included in the less than 5,000 category). This is a 5 percentage point decrease between the two periods. The contract capture for communities with populations between 5,000 and 10,000 fell by 100 percent between the two periods. Contractors located in mid-sized towns were awarded proportionately more contract dollars than they had been previously, whereas contractors from rural communities captured less contracting value than they had been (Table 4).

Table 4--Percent of contract value by contractors' community size FY 1991-1993 and FY 2000-2002

Community population (1998)	1991-1993		2000-2002	
	Real dollars	*Percent*	*Real dollars*	*Percent*
<5,000	28,905,257	39.2	16,391,604	27.3
5,000-9,999	13,460,345	18.3	7,032,068	11.7
10,000-50,000	10,923,468	14.8	14,608,890	24.3
>50,000	16,507,329	22.4	14,160,827	23.6
Unknown	3,911,762	5.3	7,855,761	13.1
Total	73,708,162	100.0	60,049,149	100.0

Figure 7—Value of fire suppression contracting by contractor location, FY 1991-1993 and FY 2000-2002



Although contractors from urban areas are capturing about the same proportion of work as they were in the 1990s, contractors from the agricultural communities of the Central Valley and the Willamette Valley have nearly dropped out of the Forest Service's contracting market in northern California. Contractors from Redding increased their contract capture from $5.7 million (8.6 percent of all contract dollars) in 1991-1993 to $8.0 million (13.4 percent) in 2000-2002. At the same time, however, rural and unincorporated communities with less than 10,000 people have seen a marked decrease in contracting dollars flowing into their communities. Communities with 10,000 to 50,000 people have seen an proportional increase in contracting dollars. Thus we see that, although the distance that contractors travel to work on national forests in northern California have decreased, rural communities have not benefited from this change. In fact, they have seen their contracting opportunities decline over the last decade, both in absolute numbers and in comparison to larger communities. Both businesses from rural forest communities and businesses that travel long distance to work have lost contracting business to regional towns and cities. Overall, however, because of the decline of money being spent on forest management contracting, contractors from all of these communities are dividing a shrinking pie.

Procurement Contracting and the National Fire Plan (FY 2001-2002)

Amount and type of National Fire Plan contracts

During FY 2001 and FY 2002, the Shasta-Trinity, Six Rivers, Mendocino, Lassen, and Modoc National Forests spent $6.8 million procuring goods and services using National Fire Plan funds. These funds were split into 46 contracts. The Klamath National Forest did not record their National Fire Plan contracts. These forests spent just over $1.2 million for five contracts involving "other forest and range improvements-non construction" a category that includes many different types of tasks including land clearing. The second most common type of work was "tree thinning." The national forests spent just under $1.2 million on eight thinning contracts (Table 5). Of this $6.8 million, $5.4 million (81 percent) was issued in FY 2001 and $1.3 million (19 percent) in FY 2002. The difference in spending between the two years is probably attributable to significant nation-wide spending of program dollars for fire suppression during FY 2002.

The amount of National Fire Plan funds that northern California national forests spent on procurement varied considerably across the forests. The Shasta-Trinity National Forest procured 45.9 percent (about $3.1 million) of the five forest's National Fire Plan funds contract dollars, while the Mendocino and the Six Riv-

Table 5--National Fire Plan contracts by product service code, FY 2001-2002*

Product service code	Product service name	Number of contracts	Total contract value ($)	Average contact value
F018	Other range-forest improvement/non-construction	5	1,285,812	257,162
F014	Tree thinning	8	1,195,719	149,465
	Unknown product service code	7	952,808	136,115
Y111	Construction/office buildings	1	748,610	748,610
Y169	Construction/other residential buildings	1	463,756	463,756
F099	Other natural resource management and conservation	5	439,437	87,887
Z222	Maintanance-repair-alteration/hwys--roads-streets-bridges	1	429,681	429,681
Y119	Construct/other admininstration and services buildings	1	305,374	305,374
F006	Land treatment practices	5	252,968	50,594
F021	Site preparation	4	191,822	47,956
R404	Professional services/land services - cadastral surveys	1	152,622	152,622
X111	Lease/rent of office buildings	1	137,736	137,736
F005	Forest tree planting	2	77,222	38,611
Z169	Maintenance-repair-alteration/other residential buildings	1	66,686	66,686
5660	Fencing, fences, and gates	1	46,622	46,622
T013	Technical writing services	1	8,160	8,160
B516	Study/animal and fisheries	1	5,000	5,000
	Total	46	6,760,035	146,957

*Shasta-Trinity, Six Rivers, Mendocino, Lassen, and Modoc National Forests

Table 6--National Fire Plan contracts by northern California national forest, FY 2001-2002

National forest	Number of contracts	Total contract value	Percent of total value
Lassen	8	742,810	11.0
Mendocino	2	579,781	8.6
Modoc	8	1,668,676	24.7
Shasta-Trinity	13	3,104,441	45.9
Six Rivers	15	664,327	9.8
Total	46	6,760,035	100.0

ers each procured less than 10 percent of these funds (Table 6).

Of the $6.8 million, $4.4 million was for work related to forest or ecosystem management work, divided into 37 contracts. The remainder was for work such as facilities construction or the purchase of goods. For the remainder of this analysis, we focus on the forest management (also called ecosystem management) contracts.

National Fire Plan funds accounted for 17.2 percent of all funds spent on ecosystem management related procurement during FY 2001 and 2002 on the five northern California national forests. Although the Shasta-Trinity spent the most dollars procuring contracts using NFP funds, NFP funds made up the largest percentage of the Modoc's ecosystem management contracting funds (45 percent) and least of the Mendocino's (3 percent). For the other forests, National Fire Plan funds made up between 12 and 20 percent of total ecosystem management contracting funds (Table 7).

Location of National Fire Plan contractors

The Forest Service awarded National Fire Plan contracts from the Shasta-Trinity, Six Rivers, Mendocino, Lassen, and Modoc National Forests to contractors in 22 communities, all but four of which were in California. Contractors from Alturas,

Table 7--Ecosystem management contracts by northern California national forest, FY 2001-2002

	All ecosystem management		Ecosystem management			
National forest	*Number of contracts*	*Total contract value*	*Number of contracts*	*Total contract value*	*NFP as percent of total*	
Klamath	58	3,386,123	unknown	unknown		
Lassen	53	3,419,024	6	596,914	17.5%	
Mendocino	25	3,785,703	1	116,025	3.1%	
Modoc	35	3,611,959	7	1,622,054	44.9%	
Shasta-Trinity	82	12,012,549	11	1,517,314	12.6%	
Six Rivers	39	2,603,660	12	514,654	19.8%	
Total	292	28,819,018	37	4,366,961	Average	17.2% *

*Percent excludes Klamath National Forest

Table 8--National Fire Plan ecosystem management contract dollars by contractors' city FY 2001-2002*

City	State	Number of contracts	Contract value ($)
Alturas	CA	1	541,013
Lindsay	CA	2	533,143
Bieber	CA	2	450,154
Palo Cedro	CA	1	429,681
Marysville	CA	1	395,657
Chico	CA	1	315,390
Camptonville	CA	1	225,156
Yreka	CA	4	198,722
McKinleyville	CA	3	173,607
Redding	CA	1	152,622
Crescent City	CA	3	143,060
McCloud	CA	3	138,537
Potter Valley	CA	2	122,525
Somes Bar	CA	3	114,265
Bend	OR	1	113,041
Malin	OR	1	84,732
Red Bluff	CA	2	63,178
Platina	CA	1	63,092
McArthur	CA	1	57,766
Klamath Falls	OR	1	40,415
Hayfork	CA	1	6,205
Muncie	ID	1	5,000
Total		37	4,366,961

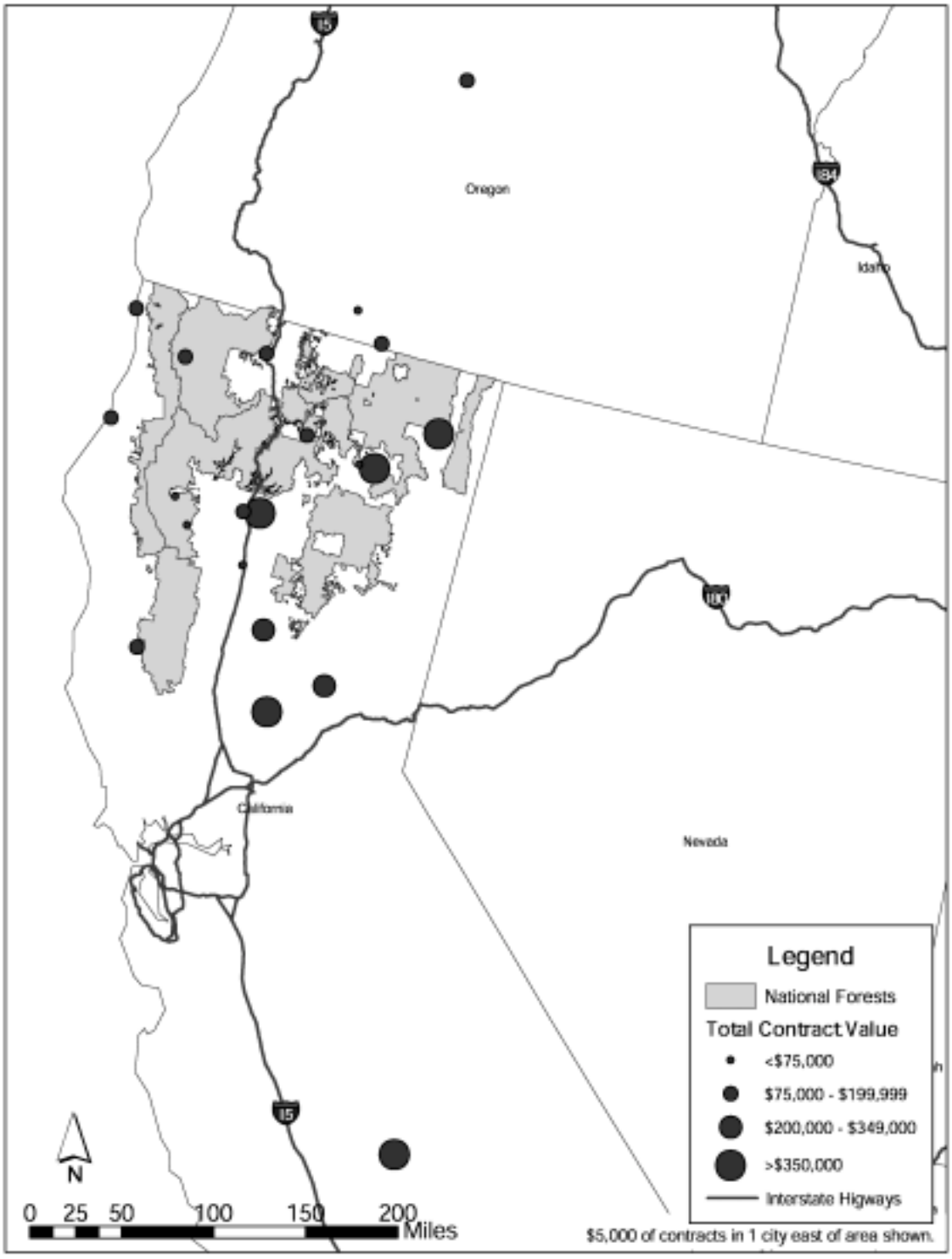
*Shasta-Trinity, Six Rivers, Mendocino, Lassen, and Modoc National F

California captured the most contract value while Yreka, California captured the greatest number of National Fire Plan contracts (Table 8 and Fig. 8).

For both FY 2001 and FY 2002, Congress explicitly authorized the Forest Service to consider whether a contractor would hire and train local workers when awarded fire hazard reduction contracts. To determine the impact of this authority, we compared the distance that contractors traveled to perform forest management National Fire Plan contracts with regularly funded forest management contracts. The contractors traveled a mean distance of 132.8 air miles for National Fire Plan contracts, whereas they traveled a mean of 133.9 air miles for non-NFP contracts. This is not a statistically significant difference. However, the median air miles for Fire Plan contracts was 54.4 air miles whereas the median air miles for non-Fire Plan contracts was 64.4 air miles. The difference in medians suggests that the single $5,000 contract awarded to a contractor in Indiana could have significantly inflated the mean distance for NFP contracts. Recall that 100 air miles is the distance between Redding and the Oregon-California border Redding to Crescent City is 123 air miles, but 212 road miles.

Although these numbers were not statistically significant when considered alone, when we controlled for other factors such as the type of work involved, and the type of contractors awarded (e.g. HUB zone and 8(a)), we found that there was a

Figure 8—Value of National Fire Plan contracting by contractor location, FY 2001-2002



statistically significant difference between National Fire Plan and non-Fire Plan contracts. Contractors performing National Fire Plan contracts were located 32.3 percent closer to the national forest than was the case with regularly funded contracts, once controlling for other factors. The variables to had greater impact on the distance that contractors traveled was the type of workand the type of contractor (Table 9).[1]

In addition to looking at the distance that contractors traveled to work on fire Plan and non-fire plan contracts, we wanted to know if contractors awarded NFP contracts were more likely to come from rural areas. Contractors with offices in communities with populations greater than 50,000 captured about three percentage points more NFP contracts dollars than they did regularly funded contract dollars. More strikingly, rural communities obtained 8.3 percentage points more NFP funded than regularly funded contracts. Contractors in mid-sized towns captured proportionately fewer NFP funded contract dollars than they did regularly funded contract dollars (Table 10).

In sum, for the Shasta-Trinity, Six Rivers, Mendocino, Lassen, and Modoc National Forests, contractors traveled shorter distance to work on National Fire Plan funded contracts than regularly funded contracts and communities less than 5,000 captured a bit more of the NFP contract value than was the case with regularly funded contracts. However, the HUB zone and 8(a) programs had a larger impact on the distance that contractors travel to work on national forest in northern California. These results suggest that the National Fire Plan authority to consider community benefit is having the intended effect. However, we should be careful about over interpreting the results. The five national forests in this study only issued 37 NFP ecosystem management contracts that could be included in our dataset. This small number means that we cannot make broad proclamations about the impacts of the program because a single contract could be affecting the results.

[1] Interestingly, the impact of being an HUB zone or an 8(a) contractor on the distance that contractors travel is opposite to what it was in Oregon and Washington (Moseley, Toth, and Cambier 2002). That is, HUB zone contractors are traveling farther to work on northern California Forests while 8(a) contractors are traveling shorter distances. This is somewhat surprising because most of the northern California counties are HUB zones and we might expect minority owned 8(a) firms to be located in somewhat more distant urban areas, where minority populations are higher. After double checking our coding, we decided that this results may be the result of low enrollment rates among northern California contractors in the HUB zone program. A quick look at ProNet, the Small Business Administration's contractor database that includes all HUB zone and 8(a) contractors, suggested that enrollment rates among potentially eligible HUB zone contractors from northern California is quite low and many of those that are enrolled from that region are also enrolled in the 8(a) program.

Table 9--Factors affecting the distance that contractors travel to work on national forests in no
FY 2001-2002

	All contracts		All contracts excluding Klamath	
	Percent change[a]	*Significance*	*Percent change*[a]	*Significance*
Dependent variable	Log distance between contractor's headquarters and national forest			
Independent variable				
Constant [b]	104.690	0.000	117.449	0.000
Award amount ($1,000s)	0.000	0.163	0.100	0.161
Distance to closest city (>50,000 population)	-0.200	0.375	-0.100	0.550
Work characteristics				
Labor (reference)				
Equipment	-33.569	0.000	-41.783	0.000
Technical	28.917	0.124	22.140	0.253
Contracting zone				
West (reference)				
East	-2.469	0.848	-9.607	0.482
HUB zone contractor (y/n)	54.342	0.040	53.572	0.051
8(a) contractor (y/n)	-49.591	0.005	-43.107	0.026
Fire Plan contract (y/n)			-32.362	0.009
R^2	0.093		0.120	
adj. R^2	0.070		0.088	
N	274		223	

[a] 100*[exp(B)-1]%

[b] Constant is presented in exp(B) format

Table 10--Contract value by contractors' community size, FY 2001-2002

	Non-NFP contracts		National Fire Plan contracts	
Community Population size (1998)	*Total contract value ($)*	*Percent*	*Total contract value ($)*	*Percent*
<5000	9,038,053	37.0	1,977,052	45.3
5,000-9,9999	3,601,819	14.7	874,925	20.0
10,000-50,000	3,555,731	14.5	927,681	21.2
>50,000	6,790,567	27.8	157,622	3.6
Uknown	1,465,887	6.0	429,681	9.8
Total	24,452,057	100	4,366,961	100.0

Conclusion

National forest contracting has undergone considerable transformation over the last decade. The Forest Service has been contracting less forest management and more fire suppression in recent years than it did a decade ago in northern California. The number of contractors involved in forest management contracting for the Forest Service has declined even faster than the funding. Rural communities and distant communities have borne the brunt of this change, while Redding and mid-sized regional town have not been hit as hard. The increase in average contract size may be making it harder for contractors for rural communities to compete and the decline of labor intensive work may well be reducing the demand for mobile crews from the California's Central Valley and Oregon's Willamette Valley. The National Fire Plan's local benefit authority may be reversing some of the losses that rural contractors in northern California have experienced. However, National Fire Plan funding has not replaced the money that was being spent on contracting in the early 1990s. Furthermore, the money spent on contracted thinning in northern California in the early 2000s was only just equal to money spent for contract thinning a decade earlier.

References

Danks, Cecilia, and Lynn Jungwirth. 1999. Community-based Socioeconomic Assessment and Monitoring of Activities Related to National Forest Management. Hayfork, CA: Watershed Research and Training Center.

Kauffman, Marcus. 2001. An Analysis of Forest Service and BLM Contracting in Lake County, Oregon: Fremont National Forest and Bureau of Land Management. Lakeview, OR: Sustainable Northwest.

Moseley, Cassandra, and Yolanda Reyes. In preparation. Contracting and Community Benefit After the Northwest Forest Plan. Eugene, OR: Ecosystem Workforce Program, University of Oregon.

Moseley, Cassandra, and Stacey Shankle. 2001. Who gets the work? National forest contracting in the Pacific Northwest. *Journal of Forestry* 99 (9):32-37.

Moseley, Cassandra, and Nancy Toth. Under review. Fire hazard reduction and economic opportunity: how are the benefits of the National Fire Plan distributed?

Moseley, Cassandra, Nancy Toth, and Abe Cambier. 2002. Business and Employment Effects of the National Fire Plan. Eugene, OR: Ecosystem Workforce Program, University of Oregon.

Acknowledgements

The Watershed Research and Training Center, the USDA Forest Service, Pacific Southwest Region, agreement number 59-PSW-99-002G, and the Ford Foundation funded this report. The opinions are those of the authors. The authors wish to thank Marcus Kauffman, Nancy Ruffner, Anna Wargin, Theodoris Broussard, Lisa Wilson, and Lynn Jungwirth for their assistance. The errors, of course, remain ours.

Appendix A

Table 11--Total dollars spent by product service code for northern California National Forests, FY 1991-1993 and FY 2000-2002

	real dollars	
	1991-1993	*2000-2002*
Labor Intesive		
Forest tree planting	16,377,486	2,761,615
Land treatment practices	13,270,512	1,778,102
Tree thinning	6,640,524	6,818,599
Other range-forest improvements/non-construction	8,192,545	4,325,173
Site preparation	3,233,187	655,211
Seed collection-production	78,988	1,191,331
Forest-range fire rehabilitation	164,384	619,955
Seedling production-transplanting	398,696	222,103
Other wildlife management	33,025	237,292
Fisheries resources management	102,087	
Surface mining reclamation/non-construction	100,727	
Recreation site maintenance/non-construction	62,087	
Tree breeding	43,590	
Insect and rodent control services	31,133	
Wildhorse-burro control		10,033
Subtotal	48,728,971	18,619,413
Equipment intesive		
Maintenance-repair-alteration/hwys-roads-streets-bridges	2,996,685	16,932,111
Construction/hwys-roads-streets-bridges	7,643,960	2,830,385
Construct/recreation non-building structures	634,180	8,359
Construction/other conservation	319,683	58,943
Aerial fertilization - spraying	227,213	
Aerial seeding		141,066
Construct/tunnel and subsurfact structures	24,907	
Maintenance-repair-alteration/other conservation structures	11,208	
Subtotal	11,857,836	19,970,864
Technical		
Other natural resource management and conservation	2,038,660	14,616,817
Study/wildlife	808,268	3,964,529
Professional services/land surveys-cadastral	1,351,187	377,728
Study/environmental assessments		1,424,070
Study/archeological-paleontological	893,666	371,853
Study/endangered species-plant/animal		457,891
Study/natural resource	301,276	81,715
Other environmental services and studies	74,899	79,268
Independent investigation survices/water pollution	79,701	
Other environmental services/studies		50,000
Other special study and analysis		35,000
Study/air quality	26,420	
Subtotal	5,574,076	21,458,872
Total	66,160,883	60,049,149

Appendix B

Figure 9—Fifty-mile radii from the center of the six national forests in northern California

Figure 10—One-hundred-mile radius from the center of the Shasta-Trinity national forest

Table 12--Comparison of distances from Redding, CA

Location	Air Miles	Road Miles
Ashland, OR	120	135
Eureka, CA	89	148
Crecent City, CA	123	212
Hayfork, CA	40	62